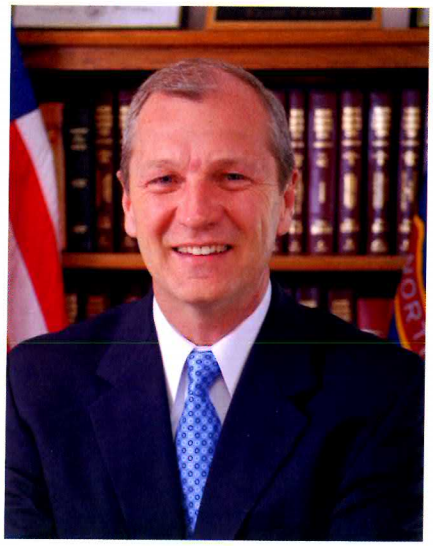
The Comeback Kid: Uranium Mining in North Dakota

In the 1950s and '60s, uranium was a viable energy source in North Dakota and had a big impact on the industry. How this source could be making a return to our state's energy plan.

By Basin Bits Staff



Commissioner Kevin Cramer, North Dakota Public Service Commission.

It wasn't that long ago that uranium played a big role in North Dakota's energy industry. In the 1950s and '60s, uranium mines in the southwestern portion of the state were popular but low prices for uranium oxide—yellow cake—eventually made it a less-than-hot commodity. When prices rose in the late '70s, exploration in western North Dakota went through the roof but an accident at the Three Mile Island power plant in Pennsylvania in 1979 quickly turned excitement surrounding uranium into health-related concerns.

For nearly 30 years, the state's uranium deposits were forgotten about but Commissioner Kevin Cramer, with the North Dakota Public Service Commission believes uranium should be part of North Dakotas' future energy options and that interest in the commodity will soon be on the rise.

"North Dakota is a state rich in natural resources, especially mineral resources that have an important role in our nation's energy security. Oil and gas, lignite coal and wind are important but other mineral and metals in this case, uranium, also have potential," says Cramer.

"The demand for uranium in this county and the world has been up and down depending on the geopolitical forces and need. I'm not an expert on what's economical but there is demand and it's certainly on the rise, even with global recession we're in. North Dakota is perhaps the most savvy energy development sate in the country. We have another product that could be part of the solution to America's energy and economic challenges and if we treat it properly and find the right solutions, and if the market is right, North Dakota can lead in yet another form of energy development."

Uranium mining, says Cramer, has come a long way from the open pit mining of the '50s and '60s and people have learned from mistakes of the past. One such mistake could be the Church and Hurick pits at the Fritz mine, located in Slope County, approximately 17 miles southwest of Belfield. The open pit mines extracted nearly 40,000 tons of uraniferous lignite coal in the '60s, burning the coal or sending it to be processed in a nearby kiln to concentrate the uranium from its ash. The process left the land on Rocky Fritz's property useless; surface materials were contaminated with uranium, cadmium and molybdenum and until part of it was reclaimed in 1992, the property was a barren wasteland, with large water filled pits and acid forming spoil materials. Workers had to wear radiation film badges and dust respirators due to the hazards caused by radioactive dust and had to leave clothing on-site after working hours.

Since reclamation of the property, Formation Resources has drilled 12 posthole samples on the site for project Sentinel, showing that interest in uranium has once again been piqued.

CLEAN MINING

There has been a drive toward clean, safe energy in North Dakota, says Cramer, and as such, the invention of in-situ mining has made a difference in how uranium is mined and the effects it can have on the environment.

"North Dakota has been providing energy solutions for decades and has done it quite well. I know the Department of Mineral Resources has developed rules for in-situ mining, which pumps the product out in a liquid, so it has its advantages—you don't have exposed people or livestock to an open mine. Our roles in regulating new uranium mines would be different because of the in-situ process," says Cramer. He also adds that, although it's not tied directly to domestic uranium reserves, our state shouldn't rule out the possibility of

A section of the Rocky Fritz property, post-reclamation, that was tested for uranium in 2008. Geologists collect lignite samples for germanium analysis. Photo courtesy of the North Dakota Geological Survey.

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The following is an excerpt from an article written by State Geologist Ed Murphy and has been reprinted with permission from the North Dakota Geological Survey.

URANIUM DEPOSITS IN WESTERN NORTH DAKOTA

The North Dakota Geological Survey (NDGS) anticipated the renewed interest in uranium and began mapping the uranium deposits in southwestern North Dakota several years ago. To date, we have identified 20 uranium deposits that encompass an area of 250,000 acres in western North Dakota (Murphy 2005, 2006 a-c, and 2007a-c). Seven of these deposits are larger than 10,000 acres and one, a deposit north of Belfield, covers more than 83,000 acres.

This is the first time that uranium deposits in North Dakota have been accurately defined (that is, mapped at scales of 1:24,000). The deposits were identified by interpreting gamma logs from coal and uranium exploration holes, NDGS test holes, oil wells, and ND State Water Commission monitoring wells. It was determined during theses studies that uranium occurs primarily within lignite beds, sandstones and carbonaceous mudstones in the Fort Union Group (Paleocene).

producing nuclear power. According to Cramer, there are 103 reactors currently in the United States but none of them are in North Dakota.

"For the growing demand for emission-free electricity, nuclear power does exactly that—it's completely clean. It's abundant, it has a small footprint and it's not an intrusive form of development. It's pretty low cost compared to other things, it's available and it's here—we don't have to import it because there's a domestic supply of the fuel source," he says.

The downside, Cramer says, is that the United States has yet to create a policy that effectively deals with the permanent storage or disposal of the spent fuel, which has created tremendous uncertainty. However, Cramer believes that the growing demand for emission-free energy drives more opportunity toward nuclear power and the demand for uranium.

"Land owners that have been part of this are quite aware of it and companies, to my knowledge, have been landowner friendly. The Sentinel project is on public land and has its advantages and disadvantages; private land that is mineral rich has its advantages, as well," says Cramer.

"One thing about western North Dakota landowners is that they are very savvy and have a great appreciation for the fertility that provides sustainable living for many generations. I put more trust in those people than in the bureaucrats that regulate it—they are good people who know their property and land better than anybody. Being the common sense people that we are, we will make sure [uranium mining] is done in a safer manner in the future."